

WHAT IS CLAIMED IS:

1 1. A broadband communication system of the type utilizing xDSL
2 packet-based technologies, the system comprising:
3 an upstream xDSL modem;
4 a twisted pair connected to the upstream xDSL modem;
5 a plurality of taps defined along the twisted pair;
6 a plurality of downstream xDSL modems, each downstream xDSL
7 modem being in communication with a corresponding tap of the plurality of taps, the
8 upstream xDSL modem and the plurality of downstream xDSL modems being
9 configured to provide packet-based point-to-multipoint communication between the
10 upstream xDSL modem and the plurality of downstream xDSL modems.

1 2. The system of claim 1 wherein the upstream xDSL modem and
2 the plurality of downstream xDSL modems are VDSL modems.

1 3. The system of claim 1 wherein the twisted pair is an unshielded
2 twisted pair.

1 4. The system of claim 1 wherein the twisted pair is a copper
2 twisted pair.

1 5. The system of claim 1 wherein the twisted pair is a Category
2 3 twisted pair.

1 6. The system of claim 1 wherein the twisted pair is a Category
2 5 twisted pair.

1 7. The system of claim 1 wherein the upstream xDSL modem and
2 the plurality of downstream xDSL modems are configured for use in a packet-
3 switched network.

1 8. The system of claim 1 wherein the upstream xDSL modem and
2 the plurality of downstream xDSL modems are configured for use in a cell-switched
3 ~~network.~~

1 9. The system of claim 1 wherein the plurality of downstream
2 xDSL modems are operative to transmit to the upstream xDSL modem in a
3 contention-based protocol.

1 10. The system of claim 1 wherein the plurality of downstream
2 xDSL modems are operative to transmit to the upstream xDSL modem in a time
3 division multiplexing-based protocol.

1 11. The system of claim 1 wherein the upstream xDSL modem is
2 operative to transmit to the plurality of downstream xDSL modems in a broadcast-
3 based protocol.

1 12. ~~A broadband communication system of the type utilizing xDSL~~
2 ~~packet-based technologies, the system comprising:~~
3 ~~a central office;~~
4 ~~an upstream xDSL modem in communication with the central office;~~
5 ~~a twisted pair connected to the upstream xDSL modem;~~
6 ~~a plurality of taps defined along the twisted pair;~~
7 ~~a plurality of downstream xDSL modems, each downstream xDSL~~
8 ~~modem being in communication with a corresponding tap of the plurality of taps, the~~
9 ~~upstream xDSL modem and the plurality of downstream xDSL modems being~~
10 ~~configured to provide packet-based point-to-multipoint communication between the~~
11 ~~upstream xDSL modem and the plurality of downstream xDSL modems.~~

1 13. The system of claim 12 wherein the upstream xDSL modem
2 is located within the central office.

1 14. The system of claim 12 wherein the upstream xDSL modem
2 is located outside of the central office, and the system further comprises:

3 a fiber connecting the central office to the upstream xDSL modem.

1 15. A broadband communication method for xDSL packet-based
2 applications, the method comprising:

3 broadcasting from a point, over a twisted pair, with an upstream
4 xDSL modem;

5 receiving at a plurality of points with a plurality of downstream xDSL
6 modems, each downstream xDSL modem being in communication with a
7 corresponding tap of a plurality of taps defined along the twisted pair, the upstream
8 xDSL modem and the plurality of downstream xDSL modems being configured to
9 provide packet-based point-to-multipoint communication between the upstream xDSL
10 ~~modem and the plurality of downstream xDSL modems.~~

1 16. The method of claim 15 wherein the upstream xDSL modem
2 and the plurality of downstream xDSL modems are VDSL modems.

1 17. The method of claim 15 wherein the upstream xDSL modem
2 and the plurality of downstream xDSL modems are configured for use in a packet-
3 switched network.

1 18. The method of claim 15 wherein the upstream xDSL modem
2 and the plurality of downstream xDSL modems are configured for use in a cell-
3 ~~switched network.~~

1 19. The method of claim 15 further comprising:
2 transmitting from the plurality of downstream xDSL modems to the
3 upstream xDSL modem in a contention-based protocol.

1 /) 20. The method of claim 15 further comprising:
2 transmitting from the plurality of downstream xDSL modems to the
3 upstream xDSL modem in a time division multiplexing-based protocol.



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